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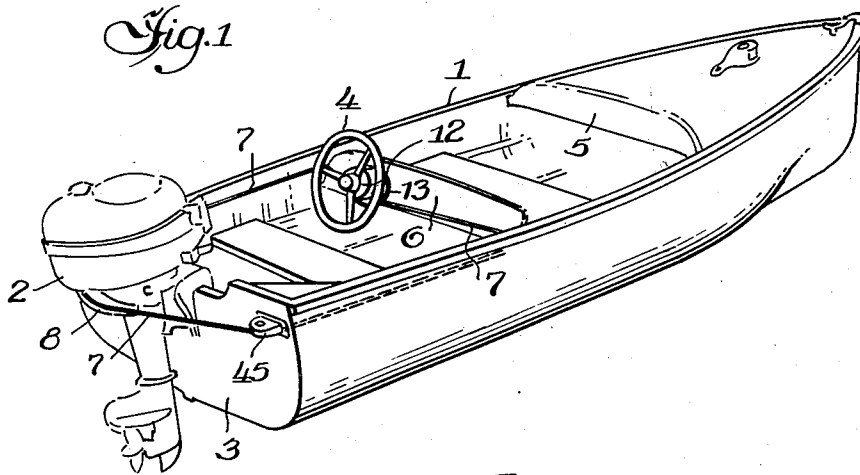
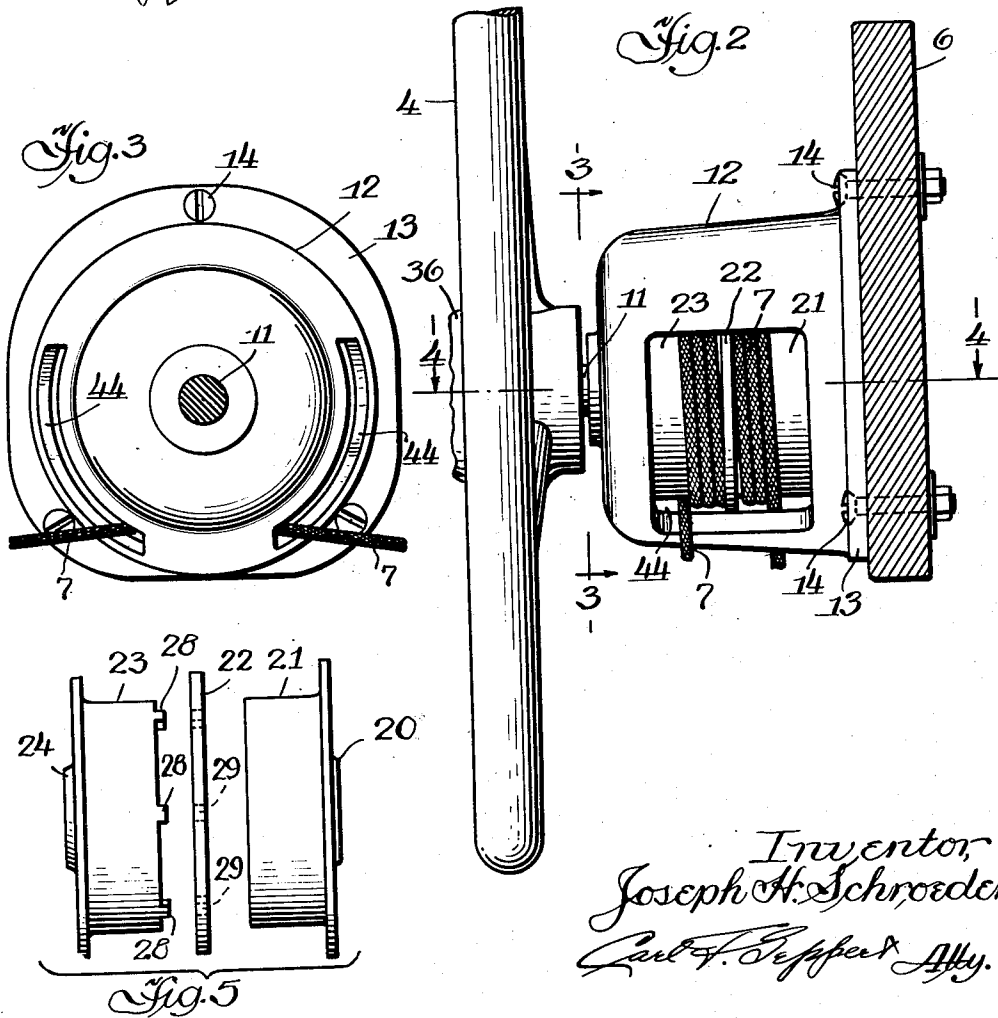
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STEERING CONTROL FOR OUTBOARD MOTORS

Filed April 12, 1949

2 SHEETS—SHEET 1



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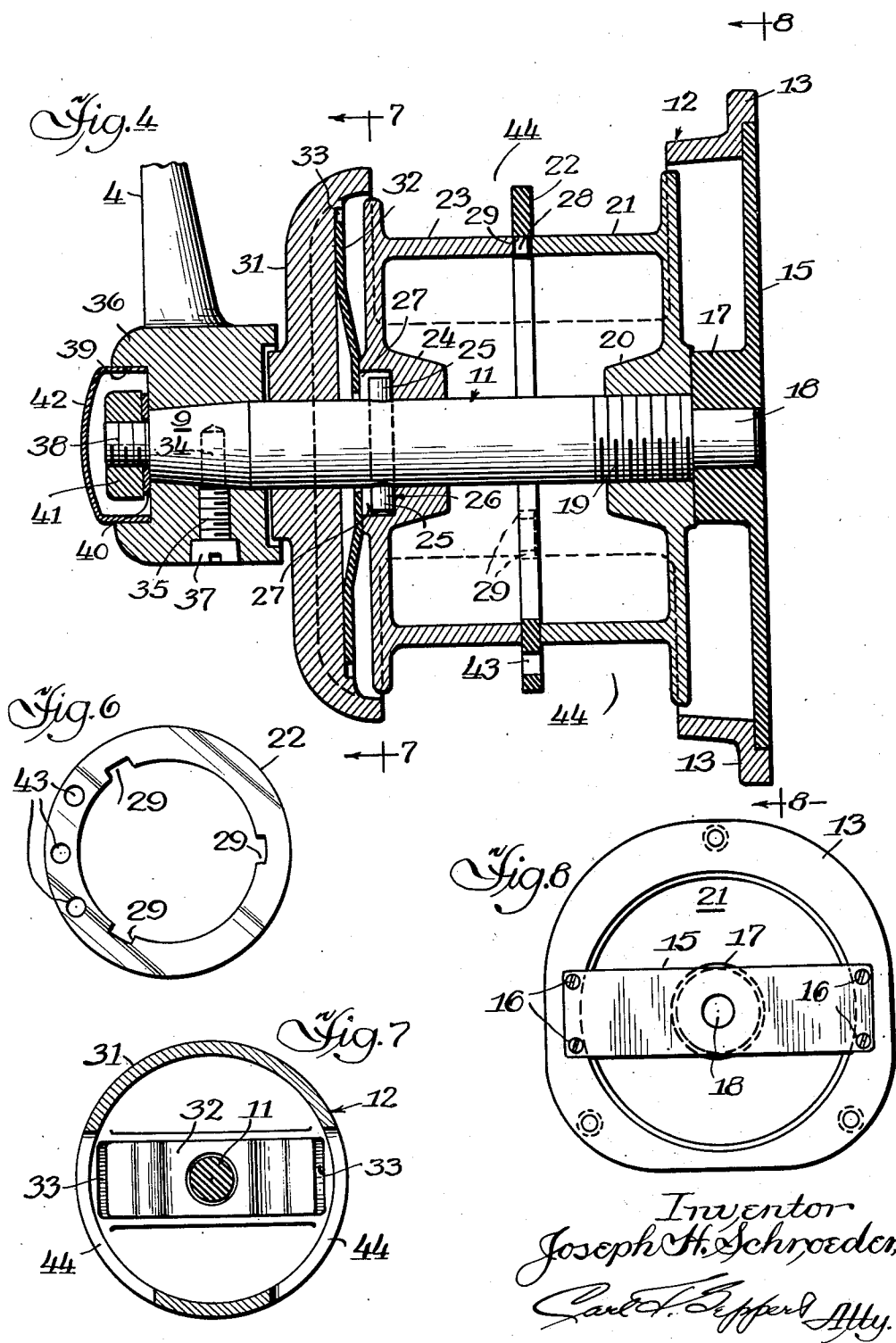
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2 SHEETS—SHEET 2



UNITED STATES PATENT OFFICE

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STEERING CONTROL FOR OUTBOARD MOTORS

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2 Claims. (Cl. 114—160)

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The present invention relates to steering mechanism and especially to a novel means and manner for steering an outboard motor by remote control.

Among the objects of the present invention is the provision of a novel steering control for an outboard motor boat having a steering wheel disposed and operated from a position forwardly of the motor or at the front of the boat.

The invention further comprehends the provision of a novel steering control in which the rope sheaves for the tiller rope are so arranged and enclosed as to prevent the rope from becoming disengaged from the sheaves and further prevent entangling or crossing of the right hand and left hand drive ropes regardless of any slack that may exist.

A further object of the present invention is the provision of a novel steering wheel assembly for an outboard motor boat so constructed and arranged as to assure positive steering control from a forward position in the boat under any and all conditions of use. The novel steering control in no way affects the ability of the operator to steer from the rear of the boat should be so desire.

Further objects are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

The invention further resides in the construction, combination and arrangement of parts illustrated in the accompanying drawings, and while there is shown therein a preferred embodiment it is to be understood that the same is susceptible of modification and change and comprehends other details, arrangements of parts, features and constructions without departing from the spirit of the invention.

In the drawings—

Figure 1 is a view in perspective of an outboard motor boat equipped with the novel steering control.

Fig. 2 is a fragmentary enlarged view in side elevation of the novel steering wheel assembly, and showing the manner of mounting the assembly upon the dash board of the boat.

Fig. 3 is a view in vertical cross section taken in a plane represented by the line 3—3 of Fig. 2.

Fig. 4 is a view in horizontal cross section taken in a plane represented by the line 4—4 of Fig. 2.

Fig. 5 is a disassembled view in side elevation of

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the tiller rope sheaves and the intermediate spacer flange.

Fig. 6 is a plan view of the spacer flange.

Fig. 7 is a view in vertical cross section taken in a plane represented by the line 7—7 of Fig. 4.

Fig. 8 is a view in rear elevation taken in a plane represented by the line 8—8 of Fig. 4.

Referring to the disclosure in the drawings and more particularly to the embodiment therein selected to illustrate the present invention, there is disclosed the novel remote control steering mechanism applied to an outboard motor boat 1 having an outboard motor 2 removably mounted on the transom 3 at the rear of the boat by any suitable clamping bracket. The steering wheel 4 may be mounted either on the forward dash board 5 or as shown in Fig. 1, upon the dash board 6 spaced rearwardly therefrom but forwardly of the usual steering device with which such motors are equipped.

The steering is accomplished by means of a tiller rope 7 having its ends attached to a steering bracket 8 mounted upon the rear of the outboard motor 2 in such manner that the application of a pull to either end of the tiller rope by rotation of the steering wheel rotates or adjusts the position of the motor such as to steer and direct the path of travel of the boat in the desired direction. To actuate the tiller rope, the steering wheel 4 is mounted upon or affixed to the outer reduced or tapered end 9 of a rotatable steering post or shaft 11, whereby rotation of the wheel in turn rotates this post or shaft and its sheave or pulley wheel assembly carried thereon, the latter being housed and rotatable in a housing 12 having a peripheral anchoring flange 13 for securing the housing to the dash board 6 by bolts or other suitable securing means 14.

This sheave or pulley wheel assembly within the housing 12 comprises a transverse base plate forming the lower or end bearing 15 bridging the rear or base of the housing and secured in a recessed portion of the flange 13 by suitable attaching screws 16. In the hub 17 of this end bearing is journaled the reduced inner or lower end 18 of the steering post or shaft 11 and adjacent thereto on an externally threaded portion 19 of the post or shaft is threadedly mounted the hub 20 of a lower sheave or flanged pulley wheel 21.

Abutting the outer end of the drum of the sheave or pulley wheel 21 is a spaced flange 22 and adjacent to this spacer flange is mounted the drum of a second or upper sheave or flanged pulley wheel 23 with its hub 24 secured to the post or shaft by the oppositely projecting ends 25

of a groove or drive pin 26 mounted in and extending transversely through the post or shaft 11 and interlocking in diametrically opposed slots or notches 27 in the hub 24. To retain the sheaves 21 and 23, and the spacer flange 22 in interlocked, assembled relation on the steering post or shaft 11, the inner end of the drum or cylindrical part of the sheave 23 is provided with spaced, rearwardly extending projections 28 adapted to be received in aligned inwardly opening slots or notches 29 in the spacer flange 22.

Between the top or face plate 31 of the housing 12 and the hub 24 of the sheave or pulley wheel 23 is inserted a leaf tension spring 32 which fits into the seat 33 on the underside of the top of the housing. The purpose of this spring 32 is primarily to maintain tension on the steering post or shaft and thereby eliminate vibration rattles but because of the tension it exerts and its tendency to maintain the sheave or pulley wheel assembly in an adjusted position, the operator may relinquish his grip upon the wheel without affecting the path of travel of the boat. Thus the steering mechanism will function as an automatic pilot to relieve the operator or in case of an emergency.

To anchor the steering wheel 4 upon the reduced outer end 9 of the steering shaft or post 11, the end 9 is provided with a transverse hole 34 extending part way therethrough and adapted to be aligned with a keyed slot or threaded opening 35 in the hub 36 of the steering wheel. Any suitable driving or locking pin or set screw 37 is adapted to be received in these aligned openings. To provide additional locking means the threaded outer end 38 of the steering post or shaft 11 extends into an outwardly opening recess 39 in the front of the steering wheel and thereat receives a lock washer 40 and nut 41. A cup-shaped knob 42 is conformably received in the recess 39 and provides a protective cover for the nut and threaded end 38 of the steering post or shaft. Thus the nut 41 and driving or locking pin 37 positively locks the wheel in operative position.

The spacer flange 22 is also provided with three spaced openings 43 through which to string the tiller rope 7 in its assembly. To assemble the rope 7 in operative position upon the assembled sheaves this tiller rope is threaded through the three openings 43 in the spacer flange 22 in such manner that one end projects toward the sheave or pulley wheel 21 and the other end toward the sheave or pulley wheel 23 with both projecting ends of the rope being of approximately the same length, and with the central portion of the rope anchored on the spacer flange 22. If the steering wheel is mounted to the left or right of the center line of the boat, allowance must be made for the extra length required from the sheave assembly to the adjacent side of the boat.

After the steering post or shaft, sheave assembly and the housing 12 are mounted upon the dash board 5 or 6 to the right or left of the center line of the boat and each end of the rope has been tightly wound about its drum for two complete revolutions, the ends of the rope will be coming off of their respective drums from underneath (see Figs. 2 and 3). Then holding the steering wheel against rotation and with the left and right hand ends of the rope projecting through the openings 44 in the opposite sides of the housing, these ends are each threaded through a pulley block mounted on the face of the dash board at the opposite ends thereof adja-

cent the interior sides of the boat. The ends of the rope are then strung along the interior of the boat (see Fig. 1), through openings provided in the transom 3, over a pulley block 45 on the back of the pulley and then each end is securely anchored to the bracket 8 on the motor 2. Although the pulley blocks are not shown on the dash board, they are preferably similar to those pulley blocks 45 mounted on the exterior of the transom at the opposite ends thereof.

From the above description and the disclosure in the drawings, it will be apparent that the present invention comprehends the provision of a novel remotely controlled steering assembly for outboard motors in which the tiller rope, by reason of the novel housing 12 which closely encompasses the flanged rope sheaves or drums 21 and 23 and the flanged intermediate spacer 22, is prevented from becoming disengaged from the rope sheaves and the right and left hand portion of the drive rope are prevented from becoming entangled, an objection found in prior types of controls now available.

Having thus disclosed the invention, I claim:

1. In a remote steering control for an outboard motor rotatably mounted at the rear of a boat having a steering shaft and a steering wheel positioned forwardly of the motor, steering mechanism mounted upon the steering shaft and comprising a pair of opposed rope sheaves and an intermediate spacer mounted upon the shaft and rotatable therewith, a housing encompassing said rope sheaves, spacer and steering shaft, a tiller rope anchored intermediate its length to the spacer and with each of the opposite ends projecting outwardly from the spacer and wrapped tightly about a sheave and from there projecting laterally in opposed directions through openings in the housing with the ends attached to the motor, whereby turning of the steering wheel and shaft rotates the sheaves in either direction to alter the length of the rope and by reason of its attachment to the motor rotates the latter to thereby steer the boat in the desired direction, and friction means connected with said housing and one of said sheaves for maintaining said sheaves and spacer in adjusted angular position upon release of the steering wheel.

2. Steering mechanism for the remote control of an outboard motor boat including a steering wheel and a steering shaft having a tiller rope connected at its ends to an outboard motor pivotally mounted at the rear of the boat and adapted to control the direction of travel of the boat by altering the position of the motor, comprising a pair of rope sheaves over which the rope is wound and a spacer separating said sheaves but rotatable therewith on said shaft, said spacer having openings through which an intermediate portion of the rope is strung with the opposite ends of the rope projecting outwardly from the spacer and wound upon its respective sheave, means for rotating the sheaves and spacer in either direction, a housing providing an enclosure for the sheaves, spacer and the rope thereon except for an opening in each of the opposite sides thereof for the passage therethrough of an end of the tiller rope as it is wound upon or unwound from its sheave, and friction means connected with said housing and one of said sheaves for maintaining said sheaves and spacer in adjusted angular position upon release of the steering wheel, said spacer having a plurality of notches for receiving projections on one of said sheaves

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whereby the sheaves and spacer are maintained
in interlocked relationship.

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